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(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]**;
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DEL PRADO**

PAVON, Javier [US/US]; P.O. Box 3001, Briarcliff Manor, NY 10510-8001 (US). **NANDAGOPALAN, Sai, Shankar** [US/US]; P.O. Box 3001, Briarcliff Manor, NY 10510-8001 (US). **SOOMRO, Amjad** [US/US]; P.O. Box 3001, Briarcliff Manor, NY 10510-8001 (US).

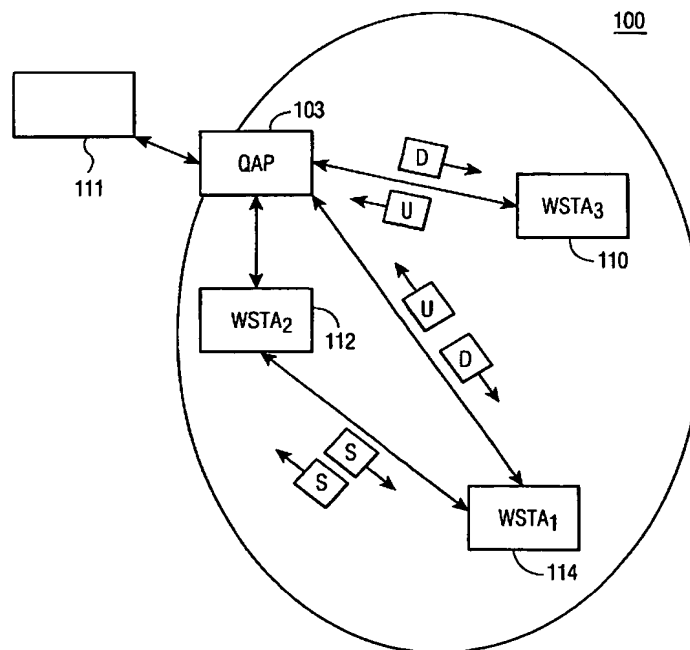
(74) Common Representative: **KONINKLIJKE PHILIPS ELECTRONICS N.V.**; c/o WAXLER, Aaron, P.O. Box 3001, Briarcliff Manor, NY 10510-8001 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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[Continued on next page]

(54) Title: A SCHEDULER SYSTEM AND METHOD THEREOF



(57) Abstract: Disclosed is a method and system based on MAC frames for enabling a QAP to seamlessly operate between granting polls for upstream and sidestream traffic while sending downstream frames. The inventive scheduling method uses a minimum set of mandatory TSPEC parameters to generate a schedule, which provides minimum performance requirement in wireless local area networks (WLANs).



SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU,

Published:

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PHUS020396WO	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/IB 03/04567	International filing date (day/month/year) 10/10/2003	(Earliest) Priority Date (day/month/year) 17/10/2002
Applicant KONINKLIJKE PHILIPS ELECTRONICS N.V.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/03/04567

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04L12/56 H04B7/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/089994 A1 (FISCHER MICHAEL A ET AL) 11 July 2002 (2002-07-11) abstract paragraph '0011! paragraph '0013! paragraph '0016! paragraphs '0045!-'0050! paragraph '0072! paragraph '0076! paragraph '0107!; figures 1-3 --- -/--	1-26

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
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- *O* document referring to an oral disclosure, use, exhibition or other means
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- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

31 March 2004

Date of mailing of the international search report

14/04/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Fantacone, V

INTERNATIONAL SEARCH REPORT

International Application No

PCT/03/04567

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SHANKAR S ET AL: "QOS SIGNALING FOR PARAMETERIZED TRAFFIC IN IEEE 802.11E WIRELESS LANS" LECTURE NOTES IN COMPUTER SCIENCE, SPRINGER VERLAG, NEW YORK, NY, US, vol. 2402, 1 August 2002 (2002-08-01), pages 67-83, XP001188291 ISSN: 0302-9743 abstract paragraph '0004! paragraph '0005! paragraph '0006! ----	1-26
A	EP 1 193 909 A (SHARP KK) 3 April 2002 (2002-04-03) abstract paragraphs '0006!-'0017! paragraphs '0031!-'0038!; figures 1-4 ----	1-26
A	WO 97 28616 A (STANFORD TELECOMM INC) 7 August 1997 (1997-08-07) abstract paragraph '04.3! ----	1-26
A	MANGOLD S ET AL: "IEEE 802.11e Wireless LAN for Quality of Service" PROCEEDINGS OF THE EUROPEAN WIRELESS, XX, XX, February 2002 (2002-02), pages 1-8, XP002271944 the whole document ----	1-26
A	AGRAWAL P ET AL: "Network architecture for mobile and wireless ATM" DISTRIBUTED COMPUTING SYSTEMS, 1996., PROCEEDINGS OF THE 16TH INTERNATIONAL CONFERENCE ON HONG KONG 27-30 MAY 1996, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, US, 27 May 1996 (1996-05-27), pages 299-310, XP010167635 ISBN: 0-8186-7399-0 the whole document -----	1-26

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP03/04567

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2002089994	A1	11-07-2002	WO	02056553 A2		18-07-2002
			WO	02056539 A2		18-07-2002
			WO	02056544 A2		18-07-2002
			US	2002089927 A1		11-07-2002
			US	2002089959 A1		11-07-2002
<hr/>						
EP 1193909	A	03-04-2002	US	2002143982 A1		03-10-2002
			EP	1193909 A2		03-04-2002
			JP	2002158676 A		31-05-2002
<hr/>						
WO 9728616	A	07-08-1997	US	6282187 B1		28-08-2001
			AU	710466 B2		23-09-1999
			AU	1828097 A		22-08-1997
			BR	9707331 A		20-07-1999
			CA	2242194 A1		07-08-1997
			EP	0868791 A1		07-10-1998
			JP	2000504180 T		04-04-2000
			WO	9728616 A1		07-08-1997
<hr/>						